REMARKS

In the Office Action, the Examiner noted that claims 6 – 18 are pending in the application, and claims 6 – 18 are rejected.

On October 11, 2006, the Examiner and the Applicant had a telephonic interview. The Applicant clarified that the invention, unlike any of the prior art references, had to first determine known information about the object, such as known location. Only then, equipped with the known information could it thereafter define the image regions. The known information is a necessary precursor to define the image regions. The Applicant then proposed language to amend claim 6, to further clarify this difference of the invention over the prior art. The Examiner did not have the benefit of having this language prior to the interview, and as such, asked that the Applicant include it in the next response. The language given to the Examiner over the telephone has been expressly included into amended claim 6.

Further, given that the interview could not be scheduled prior to the two-month date after a final office action, Applicant respectfully requests the Examiner contact the Applicant if the amendment is not acceptable before issuing a final office action.

REJECTION UNDER 35 U.S.C. § 103(a)

Claims 6 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,661,986 to Adelson (hereinafter, "Adelson") and further in view of U.S. Patent 6,831,694 to Ohki (hereinafter, "Ohki").

Claim 6 has been expressly amended to recite that the method has to first determine a known location of the object in at least one of the plurality of images. Only then, equipped with the known location, does the claim, thereafter, define a plurality of image regions. The known location is a necessary precursor to defining the claimed image regions.

Specifically, amended claim 6 expressly clarifies what the Office Action previously said previous claim 6 was lacking. The Office Action stated that the previous claim 6 failed because it "nowhere teaches "defining a plurality of image regions according to a location on the object"" 8/2/2006, OA page 3, last paragraph, line 5 – 6.

Amended claim 6 does teach this. Amended claim 6 expressly recites "defining a plurality of image regions, using the known location of the object." Amended claim 6 details the necessary order of first finding the known location, and thereafter, using this information in the definition of the image regions, such that the image regions are defined *according to a known location of the object* in at least one of the plurality of images. As, such since the cited references, as aptly pointed out in the Office Action, alone or in combination, fail to teach or suggest a step of defining image regions according to the known location of the object, as claimed by the Applicant, amended claim 6 cannot be rendered obvious to one skilled in the art.

More specifically, Adelson does not teach defining the image regions according to the known location information. Instead, Adelson teaches a spatial frequency spectrum analysis examines the entire image (each of the M images) by sampling the image with a decreasing pixel density for each descending frequency band N. The frequency spectrum analysis is performed on *the entire image* – not using defined image regions as claimed by the Applicant. Further, the pixels that are sampled at each of the N frequency bands between each of the M images is dictated by the spatial frequencies that are exhibited in each of the M images, and thus, different between the images. By contrast, the method claimed by the Applicant operates on each separately focused image identically – i.e., by measuring a sharpness score for each image region, each image region being defined by the known location of the object in at least one of the images.

More specifically, Ohki does not teach defining the image regions according to the known location information. Instead, Ohki discloses a method for computing a composite image by combining a plurality of images using a weighted average using a sharpness score, where the sharpness is measured *over the entire image*. While Adelson teaches the computationally expensive method of selecting pixels for a composite focused image using a spectrum analysis of each of differently focused images, Ohki teaches to use a weighted average of all the pixels of each image. By contrast, the Applicant's method claims a step of defining image regions that are used to compute the composite focused image.

The MPEP states that all the claim limitations must be taught or suggested by the prior art to establish prima facie obviousness of a claimed invention. Since the cited references, alone or in combination, fail to teach or suggest a step of defining image regions using the corresponding known location of the object, as claimed by the Applicant, amended claim 6 cannot be rendered obvious to one skilled in the art.

Regarding claim 17, which depends from amended claim 6, an analogous argument applies with equal force. Additionally, since the claim depends from amended claim 6, that the Applicant argues is allowable, claim 17 is also allowable.

Claims 6, 7, and 12 – 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Adelson and further in view of U.S. Patent 5,647,025 to Frost (hereinafter, "Frost").

Regarding amended claim 6, as argued above, Adelson does not teach or suggest the step of defining a plurality of image regions according to the known location of the object, as claimed by the Applicant. Instead, Adelson teaches that the entire image of each differently-focused image is analyzed to generate a single-focus composite image. By contrast, the Applicant claims measuring a sharpness score for each of the defined image regions, and computes a composite image by combining each of the plurality of images using a determined spatial weighting for the image regions using the sharpness score.

The deficiencies in the teachings of Adelson that fail to support a basis of rejection for obviousness are not remedied through the combination of Frost. Frost teaches that a focus score, along with an associated focus position (i.e., the location on the object) can be used to generate a model of the focused surface of the object. Frost merely teaches that a model of the object surface – analogous to a roadmap – can be determined so that a subsequent inspection can be readily performed by consulting the model. There is nothing to teach or suggest a step of defining image regions corresponding to a known location of the object – upon which sharpness scores are measured to determine a spatial weighting, and used to compute a composite image by combining the image regions using the spatial weighting.

Accordingly, the Adelson and Frost references, combined, or each individually, do not teach or suggest the computation of a composite image that is derived from combining defined image regions of a plurality of images using a spatial weighting determined from each of the image regions using a measured sharpness score, as claimed by the Applicant.

Regarding claim 7, and 12 – 14, that depend from amended claim 6, analogous argument applies with equal force. Additionally, since the claims depend from amended claim 6, that the Applicant argues is allowable, claims 7, and 12-14 are also allowable.

Claims 8 – 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Adelson, further in view of Frost and further in view of Kubota *et al*, IEEE Publication, 2000, *Inverse Filters for Reconstruction of Arbitrarily Focused Images from Two Differently Focused Images* (hereinafter, "Kubota").

Regarding claims 8 – 11, as they depend from amended claim 6, the Applicant reasserts its argument with respect to Adelson. Without a suggestion or teaching in the references to define image regions according to the known location of the object, there can be nothing to teach or suggest an overlapping region using a fuzzy transition as claimed by the Applicant.

The deficiencies in the teachings of Adelson that fail to support a basis of rejection for obviousness are not remedied through the combination of Kubota. Kubota teaches a method of reconstructing images having different focus to generate an arbitrarily focused image – i.e., a synthetic image at any of a desired focus setting having a realistic appearance. While Kubota does teach a solution to the problem of blending regions of images using fuzzy transitions, the teachings of Adelson in view of Kubota do not teach or suggest a step of defining image regions using the known location of the object upon which sharpness scores are measured to determine a spatial weighting, and used to compute a composite image by combining the image regions using the spatial weighting.

Claims 15 and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Adelson, in view of Frost, and in further view of U.S. Patent 5,179,419 to Palmquist *et al* (hereinafter, "Palmquist").

Palmquist discloses a method of inspecting defects in optical fiber end faces, and teaches that an optimal focus position can be empirically derived from a focus function based on a sharpness measurement at the ferrule portion of the fiber. Adelson in view of Frost, and further in view of Palmquist, either alone, or in combination, fail to teach or disclose a step of defining image regions according to a known location of the object upon which sharpness scores are measured to determine a spatial weighting, and used to compute a composite image by combining the image regions using the spatial weighting.

Nothing in Palmquist cures the deficiencies of Adelson in view of Frost cited herein before. Because none of the cited reference, alone or in combination, disclose or suggest the Applicant's invention as recited in any of the claims, and because there is nothing to suggest any motivation to combine these references in the manner suggested by the Examiner, the Applicant respectfully submits that claims 15 and 16 are allowable over the cited references.

CONCLUSION

In view of the above remarks, Applicant respectfully requests withdrawal of all rejections and allowance of the claims pending in the application. The Examiner is invited to telephone the undersigned Applicant's Attorney to facilitate advancement of the present Application.

Respectfully submitted,

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